Spontaneous Hydrophobia.

Thesis for Degree of M.D.

By

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Plan of Thesis.

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"Setting aside that quibbling application to the term hydrophobia which some writers have chosen to make to diseases in which from some painful affection of the throat, the patients have been unwilling to attempt to swallow liquids, there are cases recorded exactly resembling hydrophobia in their symptoms, and occurring in persons who were never known to have been bitten by, or even to have been in the presence of a rabid animal. The celebrated and accurate Pinel has given such a case. There is another recorded by Saviotte in the Journal des Savans (Augt. 1757.)
Now it is just possible that this disease may sometimes develope itself in the human body without any contagion having been applied." (Sir Thos. Watson Vol. 1. p 601)

While acting as assistant to Dr. W. of Manchester I met with a case which I believe to be similar to those mentioned by Sir J. Watson inasmuch as the patient, a girl aged fifteen years was the subject of a very peculiar and obscure nervous disease presenting all, or most of the symptoms of Hydrophobia, while there was not the least ground for supposing that the usual cause had preceded the disease, and indeed neither the patient herself nor her friends could ever remember her having been bitten by a dog, cat, or other animal likely to cause the disease; nor had she or they ever been in the presence of a rabid animal.

Since then, I have searched widely in current and old medical literature both foreign and British and found records of several cases of a similar kind — said to be cases of Spontaneous Hydrophobia — where the symptoms agree, almost in every detail, with those observed in our case. Taking therefore into account the peculiarity of such a case as the above and the obscurity attending its diagnosis I would respectfully beg to lay the facts of the same before you as the subject matter of my Thesis and as being well worthy of our consideration

On Wednesday 13th August 1884 I was asked by my principal Dr H. to see a patient Mary A at 31 Blanchard St, who he thought was suffering from an attack of pleurisy or pneumonia, as she was said to have a very severe pain in her side with shivering.

On reaching the house of the patient I found her sitting in undress on the side of the bed, her mother and an elder sister sitting on either side of her.

Her appearance especially on my ap=
=proaching the bed was more that of one labouring under extreme excitement than of one suffering from pleurisy or pneumonia.

Before proceeding however to make a physi=
=cal examination I endeavored to calm this excitement and if possible to gain her confidence and put her at her ease both by my manner and asking a few simple questions by which I hoped to obtain some information as to her case such as the time of onset of her illness what symptoms first appeared if pain were felt and where &c.

History of the case.

The following is the history of the case as told me partly by the brother of the girl and partly by the patient herself

She was 15 years of age and had enjoyed good health up till the afternoon of Monday 11th August when, at school she first complained of feeling unwell

At the request of her teacher she lay down on a form till it was time to dis=
=miss the scholars when she was taken to her home

She continued to feel unwell during the night, and on the following day felt no better but rather worse.

Now she complained of an uneasy feeling about the throat with soreness when attempting to swallow and stiffness of the muscles of the neck. In the evening she became very restless and excited at which time a peculiar pain in the epi=
=gastrium darting through to the back had also set in. During the night her restless=
ness increased considerably and she had such a dread of assuming the recumbent posture that all the entreaties of her parents and friends could by no means induce her

to lie down on the bed notwithstanding her frequent promises to do so. She remained throughout the night in the sitting posture in which I found her on my first visit in the evening of the following day.

These are the only particulars of the case I could gather at that time. Though subsequently I learned that on the previous day her parents took her to the Manchester Royal Infirmary where she was examined by several of the Medical Staff who pronounced her case, in the then early stage, to be one of Hysteria and recommended that she should remain inside for a few days

To this the girl objected, and becoming excited ran out of the building into the street after which she was removed home in a Cab

Physical Examination

On making a physical examination I found nothing unusual in the appearance of the inside of the mouth or fauces.
Her tongue was clean and moist, and she could open her mouth with perfect freedom when asked to do so there being no signs whatsoever of any muscular spasms of the jaws

Her pulse was small and exceedingly rapid beating from 140 to 150 times per minute
Her lungs seemed perfectly healthy and well filled with air both inspiratory and ex=
=piratory movements being normal & excepting when the patient spoke or answered questions at which time the inspiratory movement became exceedingly jerky in character
The temperature, as taken in the axilla was normal and the surface of the body cold especially the extremities
Her face had a clear though somewhat wearied and anxious expression.
The eyes were bright and mobile and the pupils widely dilated
Her speech was slow and, as before stated, accompanied by sighs or gasps similar to those produced by dashing cold water on the face or chest or when a person wades slowly into water
These gasps not only occurred when answering questions but were induced at will by me on touching her naked body unawares with my stethoscope or on blowing a draught of cold air on her neck or back.

These spasms however failed to produce as often as I informed her of my intention to touch her.

Well marked muscular tremors were also present similar to those observed in a typical case of Delirium Tremens

She was thirsty too but could by no means be induced to drink, and she had taken no food for two days

I at once ordered beef tea to be given her, but was informed by her mother that they had already prepared her some a short time since and that they could not prevail upon her to take even a teaspoonful

I took the cup containing the liquid and tried to induce her to take a little from me. By much coaxing and after many hesitations and attempts on her part she succeeded in gulping down about a tablespoonful

The effort to do so however increased her look of horror and excitement to such an extent as well as to induce the spasms of the throat that I refrained from further asking her to swallow any more of the liquid.

In order to throw some light upon the matter that would accident for these spasms of the throat and the diminished deglutition to swallow liquids I enquired whether the patient had ever been bitten by a dog or cat or had ever lived where these were kept: whether she had been subject to worms or had of late been receiving medicine of any kind in which some mistake in the compounding might have occurred To all these questions I received an answer in the negative. Neither she nor her parents could remember her ever being bitten or scratched at any time by either dog Cat or any other animal likely to cause rabies And as already stated she had up till the time of the onset of her present illness enjoyed very good health: had she at any time been bitten by a rabid animal her parents would certainly have been acquainted with the circumstance

I ordered her to be kept quiet with little light in the room and advised her to lie down and take as much of the beef tea as possible, both of which

she promised to do. In addition I prescribed the following as a sedative, and promising to call in the evening I left the house.

℞ Potass Brom ℥iv
Syr Chloral Hydrat ℥ii
Aq ad ℥iv M

Sig A tablespoonful every half hour till sleep is induced

I may here remark that on returning to the surgery I informed Mr. N. of the gravity of the case and suggested to him that, as it pointed to me of four things viz:- Strychnine poisoning Spinal meningitis Tetanus or Hydrophobia, he should take the earliest opportunity of visiting the patient. Being satisfied with the treatment prescribed for the present, he said he would do so in the morning, but as he was going from home for the day he could do no more than see her, leaving me to give such attention to the case as the extra duties appertained me during his absence would allow

On the following morning, shortly after Mr W had visited the patient, a message came to the surgery stating that she, the patient had passed a very restless night: that she appeared to be considerably worse and that convulsions had set in. Taking Chloroform with me I immediately proceeded to the house of the patient and found her considerably worse than I had left her on the previous day. She was still sitting on the side of the bed where she had sat from the evening of the 11th inst - 2½ days - and could by no means be persuaded to lie down during the whole of that time not even for a moment

The comparative calmness of the preceding day had now given place to uncontrollable excitement amounting at intervals to complete frenzy. Violent spasms were also occurring at frequent intervals during which she twisted herself into odd positions and struggled violently to free herself from the grasp of those who held her hands

She would lie still for a while during the interval of the spasms and then suddenly

jump up into the sitting posture.
Retching and vomiting had also set in the vomited matter being scanty, tenacious and of a dark olive brown colour
The silence of the previous day had now given place to talkativeness. She would persist in speaking and did so in a very irrelevant and incoherent manner especially during her fits of retching addressing those around her in words of a very endearing character. At other times she would make odd remarks to those around her and sometimes ask to be kissed or that the doctor would hold her hands and make her better.
Her pulse was still very rapid; her pupils widely dilated and her temperature rather subnormal.
With difficulty I managed to induce her to take a dose of the foregoing mixture of which very little if any had been taken during the previous night
The difficulty in swallowing seemed to be considerably increased and her efforts to do so were pitiable indeed. I at once resolved to place her under the influence of Chloroform

with a view to control or lessen the violence of the spasms.

With difficulty I persuaded her to lie down on the bed for that purpose As soon however as the towel containing the Chloroform had touched her face she was immediately thrown into a violent spasm and hastily cried out O my back, my back, you are breaking my back! and jumped up at once into the sitting posture.

I refrained as much as possible from touching her unawares with the towel during the further administration of the Chloroform, which I continued with longer or shorter intervals as the case required for nearly two hours

In spite of this however the spasms came on at various intervals during the whole of that time, and although I succeeded in controlling or lessening their frequency and violence as well as getting her into a quieter state of mind I could by no means get her into a complete state of anaesthesia

Having other urgent cases to attend I gave instructions to the parents

to keep the patient absolutely quiet and the room dark and promising to call again in about two hours, I left, intending on my next visit to try the effect of Indian hemp or Calabar bean.

On going down stairs to leave I was met by the father of the girl to whose in=quiries about her condition and chances of recovery I replied that in my opinion I saw little to induce me to hold out any hopes of recovery, and warned him that he should therefore be prepared for the worst.

Then for the first time I received the information that an elder sister aged 17 years had already died of a similar disease and after a similar interval of time the onset and subsequent development of the case resembling in every detail the features of the one I had on the painful duty to attend.

Here was a piece of startling news calcu=lated to make the present case all the more mysterious and bring with greater force to one's mind the possibility of some foul attempt having been made on the lives of these two girls

I remonstrated with the father for so long concealing this information and stated that it raised in my mind the gravest suspicion of foul play.
He replied, that, being dissatisfied with the skill and attention shown by the Medical gentlemen in charge of the first case, and desirous of obtaining the services and advice of Dr W. it occurred to him that the only way to obtain such was to conceal from us the fact of a recent medical attendance upon a similar case. This he did not only from us but also from the Physicians of the Manchester Royal Infirmary to whom, as before stated, he took his daughter for advice.

I may here state that the only information I could obtain regarding this elder sister's case was this:- She was a servant in the vicinity of her home and had also enjoyed good health up till the day of the onset of her complaint. She too came home complaining of a sore throat, difficulty of swallowing, and pain in the epigastrium. Here too the disease advanced with all the distressing symptoms

as recorded in the second case till death closed the scene which occurred on the fourth day of the disease.

On returning to the house after patient after an interval of three hours, I was surprised to find that she had just died about fifteen minutes before my arrival.
To my enquiries I learned that she was comparatively quiet for about two hours after I had left. The spasms were less severe and less frequent and she herself more rational but that about an hour before death the spasms returned in greater strength and longer in duration with a calm interval between in one of which she passed quietly away.

Post-mortem Appearances
The face was in no way contorted but had a placid expression.
The mouth was partly open and displayed a somewhat swollen tongue which together with a quantity of mucus filled the Cavity and prevented me from observing whether or not the inside of mouth and fauces

were congested. Cadaveric rigidity had already set in and the posterior parts of the head neck and shoulders were of a deeply congested and livid appearance The feet were arched and the whole body presented the lateral curvature (pleurosthotonos)

I examined the body carefully for marks or scars but could find nothing to indicate the presence at any time of a bite or scratch of a rabid animal.

As soon therefore as Mr W. returned home I at once informed him of the fatal termination of the case and suggested that as the symptoms were so obscure and mysterious — there being no history of a bite or scratch by a rabid animal, no previous illness, no tendency to worms or other intestinal disorder calculated to produce this state of matters, and above all there being two cases of a similar complaint in the same family within the short period of a week — it would be better in the interest of all parties, and in view of the possibility of an accident having occurred by which Strychnia or other allied poison might have gained access into the system

of each patient, that a post-mortem examination be held and thereby in some measure clear up the doubtful diagnosis

Mr. W. replied that in his opinion this was unnecessary and that from the few moments in which he saw her and from my fuller description of the symptoms of the case he concluded it was one of hydrophobia though for obvious reasons he thought it would be better to give a certificate of death similar to the one given in the first case namely Chorea.
This suggestion was ultimately carried out.

It may here be asked why I did not test the urine of the patient by Stas' method for Strychnine or report the case to the proper authorities and let them deal with the case as they thought best This I admit would have been the proper course to pursue. To such I reply that, on first seeing the girl while I did not overlook the possibility of poisoning by Strychnia my views rather favoured hydrophobia Neither on the other hand did I expect

such a rapid and fatal termination to the case as followed my second visit to the patient.

Here then is a case of extreme rarity with a very obscure history and yet with all showing great nervous disturbance and advancing rapidly and surely toward a fatal termination; a disease which, if not pointing on the one hand to Spinal Meningitis Tetanus or Strychnine poisoning whether by accident or otherwise may, on the other hand throw some light upon the very most question of Spontaneous Hydrophobia, or at least serve as another example of those cases referred to by Sir J. Watson.

Does this case then fall under any of the following diseases?

Cerebro-Spinal Meningitis.
Strychnia poisoning.
Hysteria.
Tetanus.
Hydrophobia.

In order therefore to determine whether our case may not be classed with one or other of the foregoing diseases we will consider, seriatim, the de= agnostic features and leading Characteri= istics of each and compare them ~~with~~ ~~the~~ in turn with the case under dis= cussion

These complaints are characterized in common by clonic and tonic or continu= ous spasms of the voluntary muscles giving rise to curvature of the body in one or other of the three modes peculiar to these affections.— either backward which is the commonest of all or forward which is less common or lateral which is the least common of all. Moreover they are also Characterized by pains in the neck, back abdomen or limbs with more or less nausea and vomiting.

In Tetanus and Hydrophobia there is the common difficulty of swallowing liquids with a peculiar pain at the pit of the stomach

Special and Characteristic Symptoms of Spinal-Meningitis.

In noting the more individual characteristics of this Complaint we would remark that in Spinal-Meningitis whether of idiopathic origin or caused by inflammation extending from neighbouring structures there are certain symptoms which differ essentially from those of the other diseases enumerated above.

Here the pain is most severe in the back extending along the spine and shooting into the extremities together with a certain amount of paralysis, limited it is true to those muscles having their nerve supply from or in connection with the region of the cord involved.
The patient may also lose control over his rectum or bladder.
If of Cerbro-Spinal origin it will be specific and contagious in character and in many cases will show a pe=
=techial or purpuric eruption of a red or purple colour on the neck breast, or limbs appearing from the second to the fourth day.

Special and Characteristic symptoms of Strychnia-poisoning.

In poisoning by Strychnia or Nux vomica, while we have the same manifestations present of spasms and rigidity of the voluntary muscles aggravated as in Tetanus & Hydrophobia by draughts of cold air blown upon the patient, giving rise to curvature of the body, there spasms are more suddenly developed when due to the administration of these drugs than when caused by either of the latter diseases.

In the former the spasms are perfectly formed in an hour or even less and the curvature is always in the backward direction (Opisthotonos) the effusor muscles overcoming the flexor muscles whereas in Tetanus or Hydrophobia the spasms are of slow growth, it may be of days. and the curvature may be forward or lateral. Furthermore the fatal termination in a case of poisoning by Strychnia or Nux vomica is rapid when compared with that of either Tetanus or Hydrophobia

Comparison of and Contrast between Tetanus and Hydrophobia.

In considering these latter diseases we would remark that while both are characterized by tonic or Continuous spasms of the voluntary muscles, difficulty of swallowing and pain in the epigastrium Tetanus is usually traceable to some local injury, though it may also have an idiopathic origin from extremes of temperature or other=wise, whereas Hydrophobia is usually associated with the bite or scratch of a rabid animal or inoculation with saliva from the same. Both however come on insidiously and in their symp=toms and progress have much in common, so much so that it affords matter for Consideration whether the virus, poison ferment or whatever the irritant may be is not of one and the same nature in each, also how far Climatic conditions may be concerned in the production of hydro=phobia as they undoubtedly are in some cases of Tetanus. It is little wonder therefore if mistakes in diagnosis should occur.

In Tetanus the spasms are more continuous and though there may be intervals when these are less severe there cannot be said to be a perfect intermission when the patient is wholly free from pain Trismus is also present, and the patient is calm and sensible to the last. In Hydrophobia there are perfect intermissions in the spasms when the patient is wholly free from pain Lockjaw is never present and there is well marked delirium toward the fatal termination.

Comparison of the symptoms of Mary A.'s case with those of the following.

(1) Spinal-Meningitis.
(2) Strychnine poisoning.
(3) Tetanus
(4) Hysteria
(5) Hydrophobia

(1) In considering the analogy between the foregoing diseases and the case under discussion I would beg to state that while there is indeed

in the nature of our case to admit of the possibility of its being one of Spinal-Meningitis not only from the absence of all history of a bite or injury and the severity of the pains in the back but from its apparant contagious Character — there being two similar case in the same family within a few days of each other nevertheless our patient had no febrile symptoms nor were there signs of petechial eruption or paralysis and the patient had full control over the rectum and bladder.

(2) In comparing the symptoms of our case with those observed in Strychnine poisoning we would remark that the spasms were of slow growth as compared with those caused by Strychnia or Brucia and the fatal termination more considerably delayed than would in a case of poisoning by either of these drugs.

(3) As regards Tetanus we can that our patient had received no injury, that lock-jaw was not present nor was there

that calm self possession toward the close which is so characteristic of Tetanus.

(4) While Hysteria might possibly simulate many of the phenomena observed in our case there were no symptoms present pathognomonic of that equally obscure and peculiar malady. Nor can I find in all the history of Medicine a single case of death resulting therefrom.

We may therefore, & think dismiss the probability of our case being any one of the foregoing diseases and confine all further discussion of the subject to the question whether it may not be classed as a case of hydrophobia.

In order to do so however it will be necessary for me to point out as briefly as possible, the leading features of that most distressing malady and compare them in turn with the symptoms observed in our patient.

Special and Characteristic Symptoms of Hydrophobia

In Hydrophobia the disease is said to be generated in animals of the canine and feline races the specific poison of which being implanted by inoculation or otherwise in man or other animals produces a similar malady: the saliva from the mouth of the affected animal constituting the poison, or the vehicle by which the poison is introduced into the system through the broken or abraded surface of skin of the person or animal bitten.

After the introduction of the poison there is a period of latency or incubation during which the poison is said to be either lying dormant in the cicatrix or maturing and gaining strength in the system. This period varies from days to years the usual time being from one to four months.

After this incubitory stage certain premonitory symptoms set in namely- numbness and tingling in the cicatrix if a bite has been received. Stiffness or soreness of the neck in moving the head

As the disease advances these are succeeded by others of a more pronounced character. There is constriction about the throat and fauces, aggravated by attempts to swallow liquids; pain at the pit of the stomach; spasms of the diaphragm; copious secretion of a very viscid and tenacious mucus from the mouth and fauces and in many cases nausea and vomiting.

There is great increase of the heart's action with small rapid pulse; cold surface of body; pale face and anxious expression; eyes bright and mobile and pupils widely dilated

The speech is slow and hesitating accompanied by jerky inspiratory breathing.

There is a well marked exalted excitability of the nerve centres giving rise to great restlessness insomnia and hyperaesthesia of the cutaneous nerves.

By and by the eye and the ear become distressed by light and sound so much so that the slightest breath of air blown upon the patient or touch imparted unnecessarily

unconsciously to his naked body or the sight or sound of running water is sufficient to produce great ex= =citement and painful spasms of the voluntary muscles.

Lastly the brain itself becomes involved and the demeanour which at first was sullen and taciturn now assumes a suspicious and irritable character

This irritability when aroused fre= =quently merges into maniacal fury and uncontrollable derangement of mind and may induce spasms of such vio= =lence and strength as to release the patient from his misery.

After death the muscles retain their rigidity for a considerable time

There is well marked congestion of the inside of the mouth, fauces, oesophagus trachea lungs and even the stomach and in many cases the internal posterior surfaces of the head neck and upper part of trunk.

There is also hyperaemia with extravasation of leucocytes around the capillaries of the central nervous system especially the medulla

the cervical part of the spinal cord and the ganglia at the base of the brain. Dr Coats has further demonstrated this extravasation as also occurring in the salivary glands and mucous glands of the larynx and in the kidneys

It is but fair to state however that similar lesions have been found in diseases other than hydrophobia, such as - purpura, diabetes, erysipelas and tubercular meningitis (Dr Meadows 1881) And later still in typhoid fever (Ivanoff. Lond. Med Record 1883)

That there is such a disease however sui generis called hydrophobia occurring in persons of all ages after they have been bitten by a rabid animal few will now deny. A disease com-like every other disease in its origin that we would infer the existence of a specific virus which under certain conditions may give rise to a specific malady.

This belief in its specificity is not equally shared by all who have written on the subject.

There are some who having abandoned all belief in the specific theory of hydrophobia, consider most if not all the recorded cases as pure psychoses or as errors in diagnosis.

In a paper read before the College of Physicians Philadelphia in Dec 1883 Dr Dulles says "A careful perusal of a large number of recorded cases leaves the impression that they had not been studied with any idea that they might be something else than what they appear to be"

Again at the close of his paper he says "But I have now been engaged for nearly ten years in a laborious study of the evidences upon which the general belief in regard to hydrophobia rests and I have been gradually led to entertain conclusions different from those with which I started and which I feel it my duty to make public: one of these is that hydrophobia is not a specific inoculable disease derived from the bite of a similarly affected animal"

There are others who, while they admit the specific theory of hydrophobia and its more frequent propagation from the bite of a rabid animal nevertheless believe it capable of being spontaneously developed in all its distressing phenomena and associate it more or less with what they call acute febrile delirium.

Among those who hold such a view may be mentioned the name of M. Girard de Cailleux. Inspector General of Lunatic Asylums for the department of the Seine Paris.

In a paper read before the Academy of Medicine Paris and reported in the Lancet for Sept. 1864 he says

(1) "Yet be true that rabies or hydrophobia be a virulent disease capable of being transmitted by inoculation from animals to man, it is equally true that it can and does develope itself spontaneously in man more frequently than is believed, in the form of acute febrile delirium, so common in the lunatic asylums of France.

(2) That it affects in man a character peculiar to the species just as other diseases which manifest themselves

among the lower animals take a peculiar character in each, albeit the peculiar nature of the disease does not lose its identity

(3) That similarity of symptoms, progress and duration together with structural injuries in each case establish between hydrophobia and acute febrile diseases an identity of nature well worthy the attention of pathologists."

Without endorsing the opinions of the former of these writers (Dr Dulles) or claiming for him more than a fair and unbiassed hearing ~~hearing~~ which at least is due to all who are labouring in the cause of truth and science — when he states that hydrophobia is not a specific inoculable disease derived from the bite of a similarly affected animal but merely the outward manifestation of some peculiar psychological condition; — Neither on the other hand can I implicitly assent to the opinions of those other writers who state that in no case does this disease ever

spontaneously in man or in the lower animals but must proceed from a previous case

At present my observations would rather lead me to endorse opinions similar to those expressed by M Girard de Caillieux who while admitting the Alas! too frequent occurrence of the disease from the bite of a rabid animal nevertheless believes that such phenomena can and do take place with the same fatal termination from causes other than by the bite or scratch of a rabid animal or by inoculation with the saliva of the same

Perhaps it may not be out of place here to refer to two cases of hydrophobia which resulted from the ordinary and generally accepted cause - the bite of a rabid dog. These cases afford a parallel in symptoms progress and fatal termination to the case under discussion

The first case is that of a man aged 26 years who was bitten in the middle finger of the left hand by

a terrier pup two months old.
This case came under the treatment of Mr Teale Surgeon to the Leeds Infirmary and was reported in the Medical Times for September 1856.

Here we have all the symptoms characteristic of hydrophobia from the first sensation of pain in the cicatrix till the last flicker of the pulse on the evening of the fourth day of the attack.

There was great uneasiness about the oesophagus aggravated into paroxysms on attempting to swallow liquids. There was hyperaesthesia of the cutaneous nerves, since slight causes such as suddenly approaching him or hastily moving the bedclothes or even waving the hand before his face immediately produced an attack of the spasms and causing him to spring suddenly into the sitting posture.
He had a small rapid pulse and a copious flow of saliva from the mouth. There was only one pupil dilated and that toward the end the delay no doubt being due to the large doses of opium given to the patient

The second case is that of a girl aged eight years who came under the treatment of Mr Jonathan Hutchinson in St Thomas' Hospital London; the particulars of the case being reported in the Lancet 1866 p 511.

Here the patient was extremely restless with a pale face, livid lips cold extremities small and rapid pulse and pupils widely dilated She had a choking sensation in the throat when attempting to swallow and her breathing was extremely jerky in character especially when attempting to speak. The pain which in most cases is found at the pit of the stomach was here referred to the vulva. She would lie quietly for a time and then suddenly jump up and work her face and limbs, throwing her arms when held into all imaginable attitudes. Death however soon released her from her miseries

Let us now consider wherein the symptoms and progress of such typical cases of hydrophobia as I have cited in the foregoing agree with those observed in our patient as recorded in the history of the case

Recapitulation of Symptoms.

We saw that there was first a melancholic stage, during which the patient complained of a feeling of general malaise with some slight soreness of throat. She was restless and unable to sleep and as time advanced other symptoms of a more pronounced character set in. The surface of the body was cold: the face pale with anxious expression the eyes bright and mobile and the pupils widely dilated. Her pulse was small and rapid. She had pain at the pit of the stomach; muscular tremors and general hyperaesthesia of the surface of the body — the latter shown as in Dr Seales case by the ease with which spasms could be induced by draughts of cold air or a touch unawares to the body of the patient.
To the soreness of throat there was added

a great difficulty of swallowing, especially liquids and a horror of even making the attempt to swallow.
Lastly nausea and vomiting set in, together with severe spasms of the voluntary muscles the latter increasing in severity, till at last, weakened in heart and exhausted in strength, our patient succumbed to this influence. This occurred on the fourth day of the disease or three full days from the onset of the same. Rigor mortis too was well marked fifteen minutes after death, and externally the whole of the posterior parts of the head, neck and upper part of trunk were deeply congested.

We saw also that our patient had received no bite or other injury: that lockjaw was not present as a feature of her complaint: that the convulsions came on in paroxysms with quiet moments of perfect intermission and that as the disease advanced well marked mental disturbance set in, the patient becoming quite delirious and unmanageable

These are all characteristic symptoms of hydrophobia and have been shown to have occurred in the cases

Lites from the "Medical Times" and "Lancet"
I have no doubt whatever that had a post-mortem examination been held we would also have found in the internal organs the lesions said to occur in most, if not in all cases of hydrophobia.

We are then led up to this conclusion and have no hesitation in stating it as my firm conviction - that this was in very deed a case of Idiopathic, that is to say Spontaneous Hydrophobia

Other recorded cases of Spontaneous Hydrophobia.

To show that the history of Medicine is not altogether barren in records of such cases apart from those of Pinel and Sauvette (Sir T. Watson) M. Buemont (Lond. Med. Repos 1814). Dr Drake (1831) Lewis Smith (New York Med Journal 1855) and Dr Condie (Trans Coll. Phys. Philadelphia 1849)
I would beg to call your attention to a case of Spontaneous hydrophobia

which came under the notice and
treatment of Dr Ballingall of the
33 Regiment and Surgeon extraordinary
to the late Duke of Kent
The following is an epitome of the case
as taken from a report in the Edinburgh
medical Journal for the year 1820.

Private John Verblanker aged 64 years
a native of Flanders. 28 years resident in
India of spare habit and sallow complexion
first complained of a slight uneasiness
at the pit of the stomach and top of
the sternum attended with some degree
of nausea and loathing of food.
He had urgent thirst, but showed the
utmost horror at the approach of water
and was affected with violent spasms
of the throat whenever it was brought
near him. There was copious secretion
of ropey phlegm from the salivary glands;
his temperature was normal and
his pulse quick and small.
As the disease advanced he showed
an aversion to light, and an extreme
sensibility to the accession of cold
air.

He slept none, and became exceedingly restless and exhausted, and gradually sank and expired

"This" says Dr Ballingall "was the last of six cases of hydrophobia which occurred in the "Royals" during my service with it in India. All of them were seen by Mr Davidson Surgeon of the regiment and four of them by myself Mr Patterson of the 26th Dragoons who was called into consultation had also (to the best of my recollection) previously seen cases of the disease: it will hardly therefore I think, be contended that we were deceived as to its nature."

In addition to the circumstances stated in the details of the case as proof of it spon=taneous origin I may mention that a native girl who had lived with the deceased for many years was particularly questioned as to his having received any bite or other injury, but could remember nothing likely to have given origin to the disease"

His Comrades gave corroborative evidence and his extremities were minutely examined but no scar was found. There was no post mortem examination, the attendants having through some misunderstanding buried the body

Coming down to our own time we have the record of several well authenticated cases of Spontaneous Hydrophobia which occurred in or around Paris and came under the observation and treatment of Dr Dujardin-Beaumetz, Collegue to M Pasteur at the Hotel Dieu Paris.

The first is that of a man aged 39. who had not been bitten by a rabid animal but who on the 3rd March 1881 was attacked with what was apparently Hydrophobia. The disease ran its course in the usual time five days having elapsed between the onset and the death. The most outstanding symptom was, in this case delirium but toward the end the respiratory centres as usual became affected causing dysponea and latterly asphyxia (Report on Cases of hydrophobia occurring in the Dept- of the Seine 1881-1883)

The second case is that of a man named Raffin who came from the department of the Loire in order to be treated by M. Pasteur. He had such a violent attack of hydrophobia in the train that he had to break his journey and remain

two days in bed. Getting somewhat better he came on to Paris and was given a bed in the Hotel Dieu. Here he was seized with a second attack and succumbed to it after an hour of terrible suffering and before M Pasteur could see him.

Neither his family nor himself could remember his being bitten by a rabid or other animal. (See Pasteurs experiments as reported in the "Field")

The third, and by far the most important case of the three, occurred in Paris in Nov. 1885 and also came under the treatment of Dr Duyardin Beaumetz in the Hotel Dieu and formed the subject matter of a paper read by him before the Hygienic Society of Paris in December 1885.

Here too the patient, a man aged 29. had never been bitten or scratched by a rabid animal and yet presented all the symptoms of a well marked case of hydrophobia, death resulting in the usual time — four days.

At the Autopsy a most diligent search was made for scars likely to be caused by a bite or scratch of a rabid animal but nothing of that nature was found.

That the case was one of true hydrophobia is beyond dispute since rabbits inoculated with material from the medulla of the deceased produced the disease in those animals, M Pasteur himself conducting the experiments. (Lancet Dec: 1885)

I have thus far attempted to show (1) That the case Conroy under my own observation differed from other allied disorders – viz Spinal Meningitis. Strychnine poisoning. Tetanus and Hysteria.
(2) That it was a case of, or at least had the chief characteristics of hydrophobia.
(3) That in it the usual cause of hydrophobia was absent, no scar or scratch or bite being present or discoverable and that there were no grounds for supposing that the girl had been at any time bitten by a rabid animal (4) That the case was therefore one of hydrophobia arising idiopathetically – Spontaneous Hydrophobia
(5) That such cases do occur as seen from the cases cited from the reports of Dr Ballingall, Dr Dujardin Beaumetz & others.

It now remains for me to enquire how far this doctrine — that hydrophobia may originate spontaneously in the human subject — is supported or opposed by prevalent beliefs regarding the nature of hydrophobia and other allied diseases

But first of all I must state that by the term Spontaneous Hydrophobia I only mean hydrophobia arising independently of the usually assigned cause — the bite of a rabid animal. I do not mean to dissociate the disease from its microbe — from its specific cause. I do not mean that the disease ever originates de novo.

It would be absurd to contend, in the face of the specificity of the disease so thoroughly proved as I shall show by M Pasteur, Dugardin Beaumetz & others, that the disease may arise without the presence of its virus. But I think it is almost equally absurd — at least I shall attempt to establish this — to suppose that the microbe finds entrance into the body only by one method — the bite of a rabid animal seeing that cases do occur without this cause

First then in support of the doctrine that hydrophobia may arise spontaneously, there is the Capital fact that cases do occur as seen by those already cited

But it may be contended that these cases cited as examples of Spontaneous hydrophobia are such, that no true reliance can be placed in the statements of either the patients themselves or their friends regarding the freedom of the former from all contact at any time with a rabid animal.

That would be assuming a very stupendous negative exceedingly difficult to prove and which happily I am not called upon to disprove

Again it might be urged that the poisonous element of hydrophobia could gain an entrance into the system by direct contact with an affected animal in some way other than by a bite or scratch from the same. And moreover cases could be pointed to where this has occurred - as in the case of the late and much lamented Dr. J. H. Young Here the animal simply licked a cut or abraded surface of skin on the hand of

his master which in most cases if not in all heals up without leaving a mark or scar behind — and gave rise to the disease in all its distressing and fatal results.

There is much I admit in this view of the case to suggest the possibility of the disease having occurred in a similar way in the cases cited. But while in Dr Youngs Case and others of a similar kind which could be mentioned we have the important and undisputed fact of personal contact with an animal afterwards proved to be rabid: in our cases we have no such fact nor even the bare remembrance of contact at any time with an animal likely to have been affected with rabies. Neither are we justified in accepting as fact what is only pure hypothesis, and till more tan= =gible proof than mere assumption is forth= =coming we think that the facts of the case as stated backed up by others of a similar kind compell us to now that this is in very deed a case of Spontaneous hydrophobia.

Further, it might still be contended that such cases being rare are errors in diagnosis; just as when we find

a case presenting that we believed to be Tubercular Meningitis, we doubt the diagnosis. As to the case I observed I will not insist that my diagnosis was correct — I believe it was. But Dr Ballingalls case was undoubtedly one of hydrophobia. He had seen several cases before, and some medical confrers who had also previously seen cases of hydrophobia concurred with him.

Again, Dr Beaumetz case certainly was diagnosed correctly. The onset and symptoms of the disease were those of hydrophobia; but what was proof positive was, that when a rabbit was inoculated with payments of the bulb of the person dead of the disease hydrophobia was produced in it.

Even were this the only observed case of Spontaneous hydrophobia it would completely and definitely prove that the disease was hydrophobia

Lastly it might still be urged in opposition that the person must have been bitten and that the cicatrix being small and

the interval between the bite and the onset of the disease long, had been over looked. I reply. the care with which old scars or cicatrices or marks were searched for without result — in the cases of Dr Ballingall & Dr Beaumetz — is sufficient answer

We now come to ask in the second place. — Does the disease ever originate spontaneously in animals, and if so, why not in man?

This question shall try to answer in the affirmative and show from facts to be cited that it is the more rational of the two theories put forth regarding the aetiology of the disease in the lower animals

The first theory — Inoculation.
The second theory — Spontaneous as well as by inoculation

The former is supported by such eminent observers as Magendie Breschet Dupuytren and Gorath.
The latter by equally keen observers such as Hellioton, Lewis Smith, Fleming, Boerhaave, Renault Haubner, Williams Hill. Hamilton and others.

I have already stated that my observations on this matter have led me to adopt the latter theory — Spontaneous or by inoculation — as against the purely inoculation theory of those who state that "in no case does the disease called hydrophobia ever arise spontaneously in man or in the lower animals but must proceed from a previous case" Here the proof of such a statement lies with those who make it and not the disproof with those who dissent therefrom.

I say that all animals affected with rabies have been previously bitten by other rabid animals is to say what in many cases is highly improbable, not to say impossible and incapable of proof. There are several cases which I propose to lay before you of the disease occurring in animals where such an assumption as the above would be utterly untenable.

Cases of hydrophobia in dogs &c
supposed to be of Spontaneous origin.

First let us take the case recorded
by Mr Teale in the Medical Times 1856
Here the animal inflicting the
the bite was a pup two months old,
and died rabid, or from what was called
the distemper, after biting the individual
Let us now suppose the case to have been
due to a bite from a previous animal -
that is by inoculation - and allow three
or four weeks as the period of incubation
(it was six in the person bitten) and deducting
this from the age of the pup at the time
when it inflicted the bite we have four
weeks as the age of the pup when it
must have been bitten by a rabid animal
Hence the improbability not to say im-
possibility of the pup being bitten during
the first month of life. Puppies are not
then at an age when they are likely to come
into contact with rabid animals. Unless
we assume what there is not the least
ground for supposing that the mother
of the pup being rabid had inflicted
a wound upon her own offspring and thereby
communicated to it the disease

Another case of rabies recorded by Lewis Smith and reported in the New York Med. Journal 1855 is said to have occurred in a village where a rabid animal had not appeared for years In this case the animal inflicting the bite was a lady's lap-dog and was never allowed to come in contact with other dogs. That the dog was truly rabid is shown from the fact that the person bitten died of hydrophobia hence a case of true rabies in the dog and of true Spontaneous.

The third case of spontaneous rabies which I have to report occurred in a tame fox and given in the Lancet 1832. p. 445.

This animal was kept confined in a kennel or house for the purpose. His owner, who one day was about to sell him to a friend, put his hand into the den to rouse him up and show him to advantage but was bitten by the fox, on the back of the hand The wound healed up, but in six weeks hydrophobia set in from which the man died. The fox also died shortly after inflicting the bite,

Again - In speaking of the epidemic of rabies which occurred in the West Indies

sixty years ago Dr. Mosley says, "Many dogs were seized with hydrophobia (rabies) during the ~~xxx~~ epidemic, which had no connection with other dogs, and that dogs brought from North America and Europe were seized with the disease on arriving in the harbour of Jamaica (Dr Elliotsons Clinique Lancet Oct 1832)

Further. In the case of Dr J. M Young, there was no ground for supposing that his dog had been bitten by another dog suffering from rabies, else the freedom of licking his hand, fraught as it was with such lamentable results would not have been tolerated. That there was no such suspicion on the part of Dr Young - which I think we are bound to admit - goes a long way to negative the assumption that his dog had been bitten by another rabid animal.

Lastly - I would beg to give a quotation from the above eminent authority (Dr Elliotson) as a fitting close to the testimony brought forward to prove that, in the dog and other animals, rabies may sometimes arise spontaneously

Dr Elliotson says - "It is assumed

without the shadow of proof, that the disease never arises in the dog but by contagion. It is the business of those who make the assertion to prove it. It is not the business of those who decline assenting to the assertion to disprove it. We see a dog labouring under hydrophobia and we do not know that it has been bitten. What right has any one to declare that it has been bitten? The disease may just as well have sprung up spontaneously as have been caused by contagion, and we have a right to decline to believe that it has been bitten till the fact has been proved

Some contagious diseases in animals unquestionably spring up under peculiar circumstances without contagion as I pointed out in my clinique and lecture on Glanders. Why not Hydrophobia or other allied diseases of this kind?"

He also states from his own knowledge that. "He has known mad dogs seized with hydrophobia that could hardly have been in the way of other mad dogs:— ladies lap-dogs, petted at home and only taken out for an airing in a carriage; or with a string carefully kept from the society of other dogs lest their morals should be corrupted"

We might also quote from Mr. Fleming — a much later authority — to the same effect.

If therefore it be true as these cases distinctly prove, that Rabies may arise in the dog or other animals without a previous bite, then we are at liberty in assuming that the disease may also appear, and does appear, in the human animal independently of the usually assigned Cause.

But suppose one says, I grant, that your case is one of Hydrophobia, I admit that the usual preceding bite was absent, and that there are several recorded cases of the same disease in medical literature, I grant even that it may arise in animals not bitten — That is to say I believe that there is such a disease as Spontaneous Hydrophobia — but. How does the disease arise? How does the virus find entrance into the animal economy?

I would reply, by the same Channels as those by which the micro-organisms of the Zymotic diseases find entrance, namely:- by ingestive and respiratory tracts — by air food or water.

Much has been written in advocacy, both of the sporadic and chemical theories regarding these diseases. Some maintain that in Hydrophobia the saliva alone constitutes the poison; Others that the saliva is only the vehicle by which

the poison is introduced into the system; others again that, the virus not only exists in the saliva, but that the flesh and milk of the affected animal are freely charged with the poisonous material and therefore capable of conveying the disease Lastly there are others who, with a greater show of truth, maintain that while any or all of these are potent to convey the disease there must first be, in the part of the person or animal bitten, a predisposition to the disease or some weakened state of his bodily organisms or a vitiated condition of his blood, before the poison can take effect. Much force we think is lent to the latter view by the fact that all persons bitten ~~by~~ ~~by~~ by mad dogs, do not contract the disease since only about 30 or 40 percent of those bitten die of the disease

Further it has been shown by Renault and Hertwig, and borne out by experiments conducted in many of the Veterinary Schools of France that inoculations practised with the greatest possible care do not always determine the disease

Indeed it has been shown by Messrs Maurice, Raynaud and Lannelongue (Academy of Medicine 1881) that on inoculating rabbits with the saliva of a hydrophobic child of 5 years

and from these to others of the same species — not only with saliva but also with portions of the medulla &c — a very rapidly fatal disease was communicated to the rabbits; these dying for the most part in from 24 to 48 hours. Here the question arose, Was this hydrophobia? This was soon set at rest by M Pasteurs discovery of a particulate microbe of the figure of 8 (huit de chiffre) which after culture could produce a very fatal disease from rabbit to rabbit.

The belief that this was the rabic virus was soon upset; for a similar microbe was found in rabbits inoculated with saliva from a healthy individual.

It was afterwards ascertained definitely by a commission appointed to enquire into this strange anomaly, that the rabbits inoculated with this cultured virus succumbed to one or other of three different complaints:—

(1) When death took place in two days following the inoculation, it was said to be due to a strange malady developed by the microbe of the saliva

whose most pronounced character was congestion of the respiratory tract.
(2) When death occurred at the period of a week it was attributed to septicaemea, and this was fully borne out by results at the P. M. which showed all the signs of putrid infection. (3) When the animal died after three weeks from date of inoculation showing signs of paralysis, hydrophobia was said to be the cause

Hence then all this uncertainty in producing hydrophobia in animals, even after being carefully inoculated with saliva and other material from persons and animals suffering from the disease? Why are so few of those who are bitten by rabid animals or bare or denuded parts attacked with the disease?
Much no doubt is due not only to the absence of a predisposition to the disease on the part of the person or animal bitten but also by the difficult diffusability of the microbe; the difficulty it may experience in passing from the tissues to the blood vessels or lymphatics and the varied permeability of the several tissues with

with which it may come into contact.

It has been observed that the effect of this micro-organism on the central nervous system is so great that it completely masks its action on all other parts and tissues of the animal economy and thus as it were displays a special affinity for those special tissues.

We are inclined to think that when once the virus gains an entrance into the vascular system it is carried by the vital fluid through every part of the animal economy and its action upon the several tissues will be in proportion to its own diffusability and the permeability of the tissues acted upon.

The more dense the intercellular tissue, the less marked will be the action of the microbe, and vice versâ. Also too, the greater the flow of blood to a part, the greater will be the action of the irritant on that particular part or tissue hence we find the apparent habitat of the hydrophobic virus to be the salivary glands and the central nervous system; situations where

the intercellular tissue is of the loosest discription, and the blood supply proportionally greater.

Further. In the development of these micro-organism in man or in the lower animals there appears to be a cycle through which these must pass before they can give rise to the phenomena peculiar to the malady:— First. Its application to the tissues of the person or animal bitten Secondly. Its passage through the lymphatics and walls of the bloodvessels into the vital fluid where it matures and propogates its kind, and thirdly its passage outward again through the walls of the blood vessels into the surrounding tissues.
It is on the completion of this third stage when the disease may be said to begin.
That the blood is thus free from the infective material has been proved by Buschet Bagendie Renault Galtier Paul Bert and others whose transfusion of the blood of mad dogs was in every case negative and failed to produce the disease.

Since these experiments were made with the blood of affected animals; others have been carried out with greater success when made with fragments of the nervous tissue. While the blood was found innocuous the medulla and other portions of the central nervous system ~~have been~~ from a rabid animal has never failed to produce the disease when directly applied to the surface of the brain of the animal experimented upon.

This was first made known by Pasteur and his pupils Chamberlan Roux and Thuillier on 30th May 1881

In a communication sent me by Dr Beaunety he states — in comment=ing on these results of M Pasteur — that.

"La plus importante de ces conclusions est a coup sûr celle qui nous montre que le virus rabique, que l'on plaçait jusqu'ici dans la saline et dans certaines glandes salivaires, existait surtout dans le system nerveux et en particulier dans le bulbe.

L'on peut affirmer que le bulbe rachi=-dien d'une personne ou d'un animal mort de la rage est toujours virulent,

et jamais l'inoculation intra-arachnoïdienne du bulbe d'un animal enragé n'a manqué de donner la rage.

C'est là un fait capital, constituant une véritable réaction de l'hydrophobie rabique, et que nous permettra désormais, lorsque notre diagnostic sera hésitant, d'avoir une preuve irrécusable de la rage. Dans plusieurs de nos observations, c'est grâce à cette réaction que le diagnostic a été confirmé'

Again in speaking of the Pathological Physiology he states that—

"Toute la symptomatologie de la rage réside du point de l'axe cérébro-spinal où ces microbes se développent avec plus ou moins d'abondance. Siégent-ils dans la moelle, ce sont les symptômes médullaires que prédominent et c'est ce que l'on observe dans un grand nombre de formes paralytiques chez les animaux. Siégent-ils surtout dans le cerveau, ce sont les manifestations délirantes qui occupent le premier plan. Mais la scène se termine toujours par l'envahissement du bulbe,

et l'on voit alors apparaitre les symp=
=tômes de dyspnee, de dysphagie, d'acces
convulsifs, et enfin la mort subite, selon
les differents etages du bulbe qui sont
envahis par les proto-organismes.
On comprend donc que les formes de la
rage puissent varier à l'infini, suivant
les differents points de l'axe Cerebro-Spinal
ou se developpe le virus rabique.

There are undoubtedly very important results — results far in advance of any that have hitherto been attained in seeking to unravel the mystery which hangs around this peculiar and distressing malady They reveal to us a sure test when our diagnosis has been un=
certain they explain much that was obscure and anomalous in the symp=
=tomatology of the disease; but what bears more practical fruit they are among the first links in the chain of facts on which Pasteur has hung his mode of treatment by inoculation

Much has been done in the eluci=
=dation of the nature of the disease, there yet remain many points requiring

explanation. One of these has struck me forcibly It is this Why should a Hydrophobia be a non-febrile disease, and yet be due to an animal poison?

Let us hope that some answer may yet be given to this and other questions of a similar kind that have hitherto remained unanswered.

I have now gone over the several points I set myself to accomplish at the outset of my paper. I have quoted from Sir J. Watson the possibility of such cases occurring. I have shown from the history of the case that its various phases from the onset to the close, were those generally associated with a good typical case of Hydrophobia. I have compared the case with several other diseases with which it might possibly be associated, and by a process of comparison and exclusion of these narrowed the question down to the possibility of our case being one of Hydrophobia. I have compared our case, not only with the symptoms said to occur in that

disease, but also with two typical cases of that complaint, the symptoms of which corresponded in every detail with those of the case under discussion, and thus by analogy have proved that our case was one of Hydrophobia. Moreover, I have supported this conclusion with cases, cited from accredited observers, foreign and British, which were believed to be Spontaneous, there being no history of a bite or contact at any time with a rabid animal. I have refrained from quoting other cases, stated as Spontaneous, where the dogs did not die, upon which fact alone the spontaneity of the disease was based — simply from a desire that all the cases quoted by me should be altogether independent of the bite of an animal

Then as regards the disease in the lower animals I think I have also shown from cases cited that here too the disease occurs Spontaneously, even more frequently than is supposed — certainly more frequently than in man — and if Spontaneous in the lower animals why not in man?

Lastly I have pointed out other possible channels, other than by a bite or scratch by which the rabic virus

could gain an entrance into the human organism — Channels which are held to be the only possible way short of inoculation in other diseases due to the action of a micro-organism.

Here, however, I must draw to a close. I have advanced and tried to prove much that is opposed to the present prevailing opinions among medical men regarding Hydrophobia, and, it may be, opposed to the views of those at whose feet I have but lately sat as a student.

In setting to advance the truth of my contention — the possibility of Hydrophobia occurring idiopathically, that is to say spontaneously — it is not because it is any pleasanter to do so than it is to run with the tide of popular opinion, the latter being by far the safer course. It is because of a profound conviction of the truth of my premises that I have done so, and if I have failed in fully establishing what I have undertaken the fault lies with my mode of treatment — not with the facts upon which this is based. In conclusion let me repeat the eloquent words of our present and much esteemed Lord Rector Dr Lushington "That every search after knowledge honestly and steadfastly pursued, will yield beneficent results and ennoble the character rescued by its spell from lowering influences"